

Aircell Polymer Floor Diffusers

WFORT	Pressurised Floor Void - Tile installation suitable for fitting into standard floor tile thicknesses of up to 50mm,
WFOIT	As above but with high induction disc
WFOVT	As above but with low pressure vertical air pattern disc
WFORS	Pressurised Void - Slab floor installation supplied with a steel adaptor collar which is cast into the floor slab.
WFORP	Ducted installation with plenum
WFOVP	As above but with low pressure vertical air pattern disc
WFOID	Step Drilled Installation. The diffuser disc only is supplied, suitable for installation into pre-cut holes in floor tiles.



Aircell Polymer Floor Diffusers

WFOR / WFOV / WFOI

Introduction

The Waterloo Aircell WFO series floor diffusers offer the choice of horizontal or vertical air patterns with its flip over design, as well as a host of other unique & patented features.

The WFOV low pressure vertical supply disc offers vertical projection with a 50% increase in air volume capacity, compared with standard WFOR units.

The WFOI provides a high induction discharge pattern at between 30 and 45 degrees which provides dynamic mixing that results in efficient velocity equalisation within the occupied zone.

The WFO diffuser discs are 200mm Ø and have been designed to resist permanent deformation when subjected to point loads up to 500 kg.

The WFOV diffuser disc is suitable for point loads up to 300kg. All materials used are fire retardant.

Product Description

WFOR Pressurised Floor Void - Tile installation suitable for fitting into standard floor tile thicknesses of up to 50mm, supplied with a locking collar which is screw fixed to the underside of the tile

WFOIT As above but with high induction disc

WFOVT As above but with low pressure vertical air pattern disc

WFOR Pressurised Void - Slab floor installation supplied with a steel adaptor collar which is cast into the floor slab. The diffuser can then be installed into the collar with concealed spring clips

WFORP Ducted installation with plenum

WFOVP As above but with low pressure vertical air pattern disc

WFOID Step Drilled Installation. The diffuser disc only is supplied, suitable for installation into pre-cut holes in floor tiles.

Features

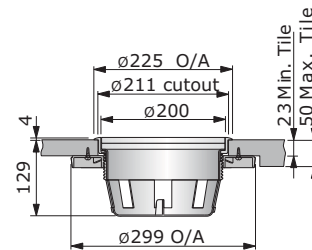
- Unique 'flip-over design' (WFOR)
- Memory locating peg
- Easy fit locking collar
- Concealed fixing bracket for concrete / slab flooring
- Combined damper / dirt tray with incremental damper positioning
- Heavy duty glass reinforced polycarbonate construction
- Compact plenum with optional spigots to suit 100 or 125mm ducting

Finishes

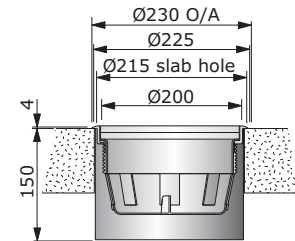
WFO diffusers are available in a slate grey finish (RAL 7037 Mid Grey) as standard. Limited other colours can be specified subject to a minimum order quantity of 1000 No. (Note: lead time and price will be affected).

Advantages

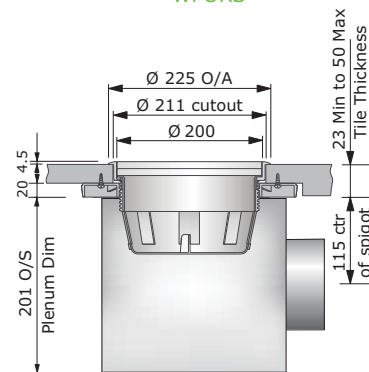
- Ability to change between horizontal and vertical settings instantly (WFOR)
- Commissioning settings are retained once set using the memory locating peg
- Reduced installation time with easy fit locking collar



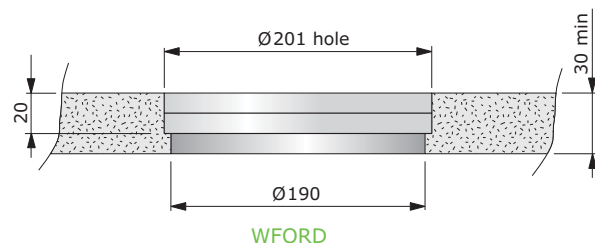
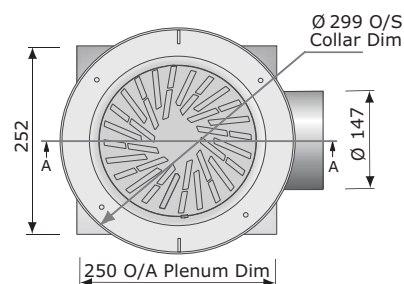
WFOR T WFOVT WFOIT



WFORs



WFORP WFOVP



WFOR

Product Type Code	
I	Intermediate Type
R	Reversible Type
V	Vertical Type
D	Disk only
P	Plenum installation type
S	Slab installation type
T	Tile installation type

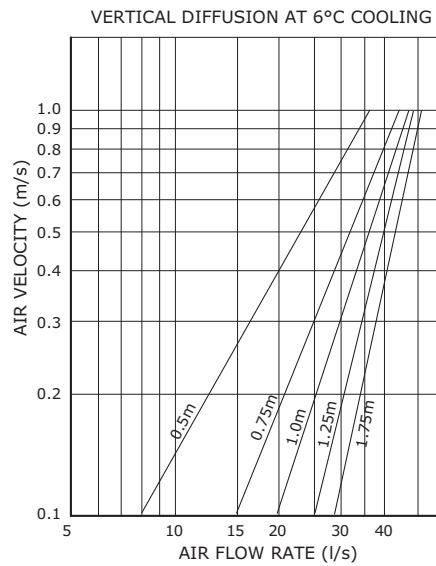
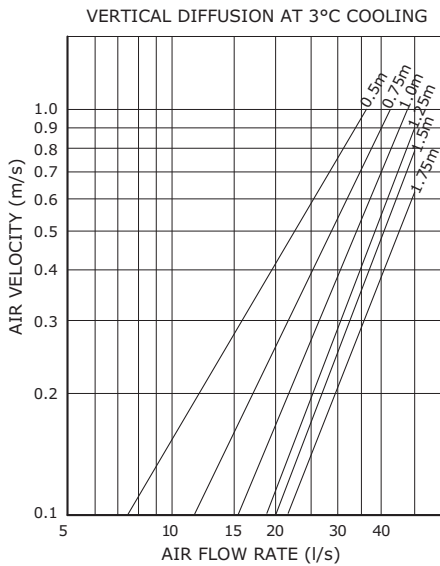
ORDER EXAMPLE

WFO/R/T
Type _____
Disc type _____
Installation _____

Aircell Polymer Floor Diffusers

WFOR Standard Disc Performance

Performance Graph



Selection Example WFOR (Horizontal Setting)

Air Volume 25 l/s
Jet velocity at 1m from the diffuser will be 0.26 m/s for 3°C cooling
Pressure Drop 25Pa
Noise Level 29 dBA

Pressure Loss Data - Both Settings

	Air Flow Rate (l/s)						
	10	15	20	25	30	35	40
Static Pressure Loss (Pa)							
WFOR	5	10	17	25	35	45	56
WFORS	5	10	17	27	38	50	-
WFORP	7	17	29	45	64	-	-
WFOR	4	7	12	19	26	35	45

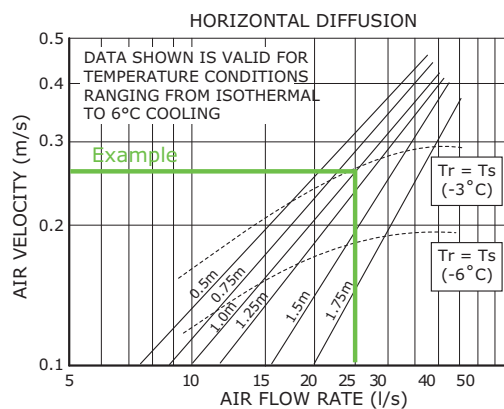
All pressure loss data is based on a fully open damper

Acoustic Data - Horizontal Setting

	Air Flow Rate (l/s)						
	10	15	20	25	30	35	40
dBA L_w (Ref. 8dB Room Absorption)							
WFOR	<20	<20	24	29	34	38	41
WFORS	<20	20	26	31	35	39	-
WFORP	<20	23	30	35	40	-	-
WFOR	-	-	<20	25	29	33	37

All acoustic data is based on a fully open damper and horizontal diffusion. Reduce tabulated figures by 8dBA for vertical diffusion.

Performance Graph

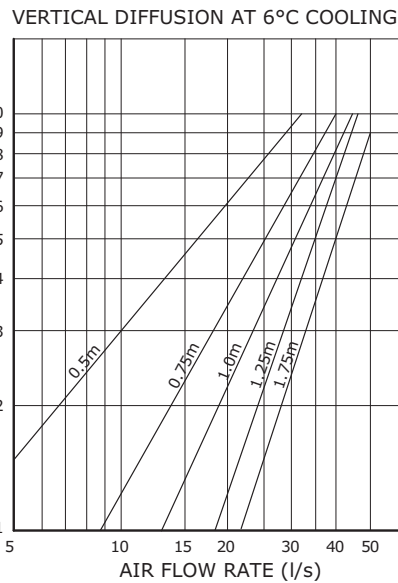
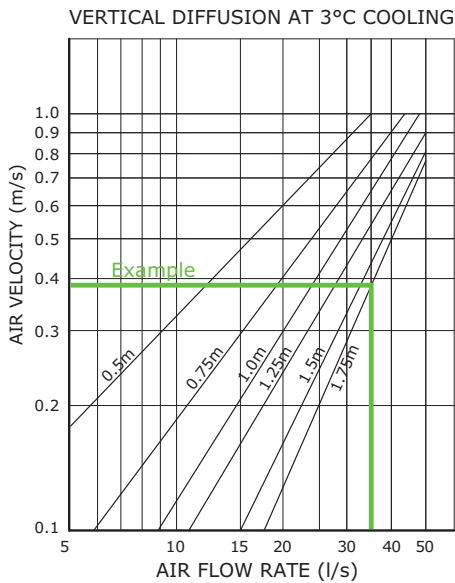


The dotted lines represent the approximate distances from the diffuser where the jet air temperature (T_s) is the same as the room air temperature (T_r).

Aircell Polymer Floor Diffusers

WFOV Low Pressure Disc Performance

Performance Graph



Selection Example WFOV

Air Volume 35 l/s
Jet velocity at 1.75m vertically from the diffuser will be 0.39 m/s for 3°C cooling
Pressure Drop 20Pa
Noise Level 23 dBA

Pressure Loss Data

	Air Flow Rate (l/s)						
	10	15	20	25	30	35	40
Static Pressure Loss (Pa)							
WFOVT	2	4	7	11	15	20	26
WFOVP	0.7	2.6	3.7	6	8.7	13	16

Acoustic data

	Air Flow Rate (l/s)						
	10	15	20	25	30	35	40
dBA L _w (Ref. 8dB Room Absorption)							
WFOVT	-	-	-	-	<20	23	27
WFOVP	<20	23	30	35	40	-	-

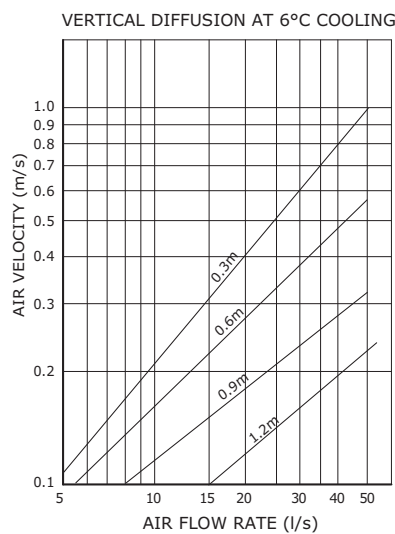
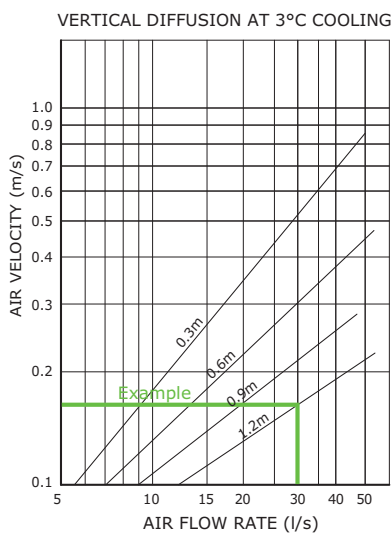
All pressure loss data is based on a fully open damper

All acoustic data is based on a fully open damper.

Aircell Polymer Floor Diffusers

WFOI High Induction Disc Performance

Performance Graph



Selection Example WFOI

Air Volume 30 l/s
Jet velocity at 1.2m vertically from the diffuser will be 0.17 m/s for 3°C cooling
Pressure Drop 10Pa
Noise Level 12 dBA

Pressure Loss Data

	Air Flow Rate (l/s)				
	20	25	30	35	40
Static Pressure Loss (Pa)					
WFOIT	4	7	10	15	22
WFOIP	6	16	26	34	42

All pressure loss data is based on a fully open damper

Acoustic data

	Air Flow Rate (l/s)				
	20	25	30	35	40
dBA L _w (Ref. 8dB Room Absorption)					
WFOIT	-	-	<20	<20	20
WFOIP	<20	<20	22	25	29

All acoustic data is based on a fully open damper.

Aircell Polymer Floor Diffusers Installation

Type WFO * T (Tile installation)

Type WFO * T Diffusers are suitable for installation into floor tiles from 23.5mm to 50mm thick. A 211mm diameter hole is drilled/cut through the tile. Ensuring the aperture is free from shavings/rough edges etc., insert the mounting frame into the hole. Locate locking collar onto the underside body of the mounting frame and tighten to the underside of the tile. The main body of the unit should now be firmly held in position, screw holes are provided in the locking collar should additional fixing be required. The combined damper/dirt tray can now be positioned into the mounting frame. Ensure that the damper airways are open and place location peg into the slot provided to lock in position.

Finally select the air pattern required either vertical or horizontal by referring to the disc location tab and place into the aperture ensuring alignment tab engages with the cut out in the mounting frame. To remove the disc use the tool provided.

Type WFO * P (Tile installation with plenum)

Installation as described for WFO * T. Take the mounting collar and place it facedown on the plenum box opening. Align the fixing holes and secure using the self tapping screws supplied. Place diffuser frame in the tile opening and engage with mounting ring. Screw bracket into mounting ring until flush. Adjust spigot portion as required. Lay the tile and connect up to ductwork.

To remove the disc use the tool provided.

Type WFO * S (Slab floor or wall installation)

The steel sleeve is positioned to the customers requirements and cast into concrete floor/wall slab. Ensure that the sleeve and face flange are free from debris, fit the mounting clamps, screws and cylinder nuts as shown, to the mounting frame, insert into steel sleeve, gradually tighten the screw head clockwise until the cylinder nut has expanded the clip into the sleeve groove. Establish that the mounting frame is secure and insert damper/dirt tray locking pin, and diffuser disc.

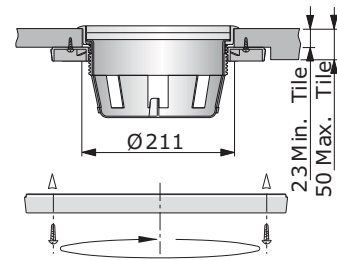
There is no requirement for the locking collar so this can be disposed of.

To remove the disc use the tool provided.

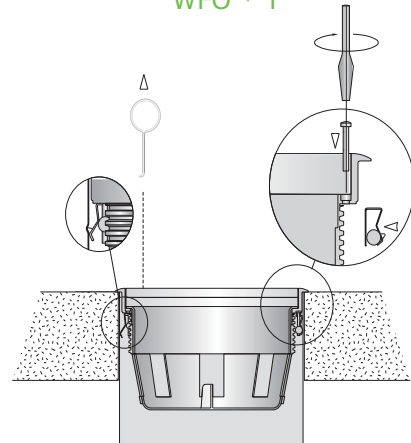
Type WFO * D (Diffuser disc only)

Drill/cut a 211mm diameter hole in the floor, 20.5 mm deep. Ensure the aperture is free of shavings/debris and place the disc into position. To remove the disc use the tool provided.

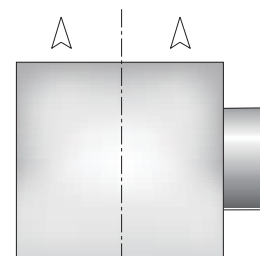
Note: The connection between the diffuser and plenum is adequately sealed for most installations, although secondary additional sealing may be required at the discretion of the installers, if the leakage rate required is particularly low.



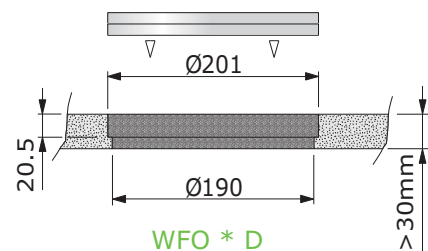
WFO * T



WFO * S



WFO * P



WFO * D

Notes



Waterloo Product Range

GRILLES

A complete range of products suitable for all wall, ceiling and floor applications. Most grilles are made from aluminium and have a range of fixed or moveable blades designed to give performance whilst remaining aesthetically pleasing to the eye. Grilles are made to customer specified sizes and colours (PPM/G); standard colour PPM9010 (20% Gloss White). The range is complemented by the Aircell range of polymer Grilles.



DIFFUSERS

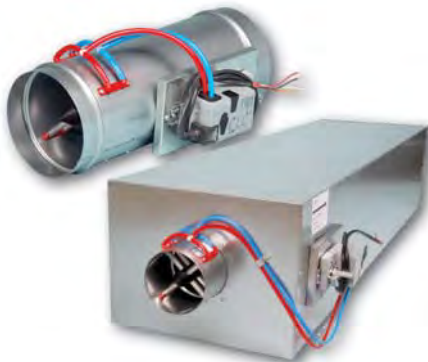
Designed to be installed in various ceiling systems, we have a complete range to suit both performance and aesthetical requirements. Most diffusers are made from aluminium and can be ordered with or without plenum boxes for easy duct work. Diffusers can be ordered in customer specified colours (PPM/G); standard colour is PPM 9010 (20% Gloss White). This range is complemented by the Aircell range of polymer Diffusers.



ACTIVE AND PASSIVE CHILLED BEAMS

The finest quality range of high output active beams, used for ventilated heating and cooling applications. These units have 4 pipe coils to allow heating and cooling circuits to run simultaneously, giving constant and responsive control. The design allows a large optimum capacity and also allows the customer to specify the nozzle type and pitch for individual circumstances.

Active beams are made from steel to a large range of customer specified sizes and as such are suitable for various different ceiling systems. Standard finish is PPM 9010, however other (PPM/G) colours are available on request.



AIR VOLUME CONTROL DAMPERS

Pressure independent Variable Air Volume and Constant Air Volume dampers made from zintec plate. Most volume dampers are regulated with an electronic motor and sensors and are calibrated to customer specifications before delivery.

The Constant Air Volume damper requires no power source as it is controlled via a mechanical device and calibrated before delivery. All volume dampers can be ordered with a single or double (insulation) skin.



EXTERNAL LOUVRES

A quality range of products for external wall applications. Made from aluminium, with birdscreen or insect screen options. All louvres are made to customer specified sizes and (PPM/G) colours; standard colour is PPM 9006.



DISPLACEMENT

A full range of recessed, semi-recessed, floor, wall and corner units providing high ventilation efficiency and excellent comfort. The very low pressure involved also offer quiet installations. Displacement units are available as wall or floor mounted, or indeed integrated within the architectural design.



Waterloo Air Products Ltd

Head Office:

Mills Road, Aylesford,
Maidstone, Kent ME20 7NB
Tel: +44 (0)1622 711500
Fax: +44 (0)1622 710648
email: sales@waterloo.co.uk
internet: www.waterloo.co.uk

Northern Office:

Hyde Park House, Cartwright Street,
Newton, Hyde SK14 4EH
Tel: +44 (0)161 367 1264
Fax: +44 (0)161 367 1262
email: sales@waterloo.co.uk
internet: www.waterloo.co.uk



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